

Tribus 8. CRYPHÆACEÆ.

15. *Cryphæa*, Brid.

116. *C. heteromalla*, Hedw. Musc. Frond. 3. t. 15 (sub *Neckera*); M. P. 96.

Hab. Z₀₋₁ corticicola per Pyrenæos humiliores.

[To be continued.]

XXXIV.—*Observations on the Animal of Kellia rubra*, by WILLIAM CLARK, Esq., in a Letter to Professor EDWARD FORBES.

To Richard Taylor, Esq.

DEAR SIR,

THE interesting letter I herewith send you relates to the curious little bivalve mollusk *Kellia rubra*, upon the animal of which some important observations were communicated by Mr. Alder to the number of the 'Annals' for September last. In the 15th part of the 'History of British Mollusca,' by Mr. Hanley and myself, full use is made of Mr. Alder's notes, and also of valuable manuscript notes on the *Kellia* kindly communicated to us by Mr. Clark. The discrepancies between the statements of different observers as detailed in our work have induced Mr. Clark to turn his immediate attention to the subject, and the results are contained in the following letter. Their value is such that I grudge the delaying of the communication of them to the public until the conclusion of the 'History,' when we mean to add abundant new matter in supplementary notes.

I need scarcely say that the statements of Mr. Clark go towards confirming the union of Recluz's genus *Poronia* with *Kellia*, the view taken in the 'History of British Mollusca.' M. Deshayes's drawing of the animal of *Kellia Geoffroyi* (in the Mollusques d'Algérie) exhibits the same conformation of tube observed by Mr. Alder first and since by Mr. Clark in *Kellia rubra*.

Most truly yours,

EDWARD FORBES.

7 Norfolk Crescent, Bath,
7th March, 1849.

MY DEAR SIR,

It gives me pleasure to have it in my power to send you what I think is a correct account of the malacology of *Kellia rubra*.

After I had written to you on the 4th instant, I became dissatisfied, and I determined to make an attempt at once to settle the point, as to the tube of *Kellia rubra* being open underneath or otherwise; for which purpose I wrote to a friend to obtain from certain rocks, four miles from Exmouth, a parcel of *Fucus*

pygmæus, and send it to Bath in a moist state with a small phial of sea-water. It arrived yesterday by the post, and I found therein twelve specimens of *Kellia rubra*, which being placed in a watch-glass in sea-water showed themselves as lively as if examined at Exmouth. By the superior appliances used I at once saw what I had overlooked at Exmouth, and that Mr. Alder is perfectly right in stating the tube to be open below; all the animals repeatedly inserted the foot into the canal, and by thus displacing its sides, showed distinctly it was an open fold of the membrane; but the moment the foot was withdrawn, it reverted to its usual perfect tube-like aspect; indeed the most accomplished observer might be deceived, as it appears M. Philippi was. In fact this canal is a mere prolongation of the mantle, which is *entirely* open for more than half the ventral range, for the working of the foot and byssal apparatus.

But Mr. Alder is mistaken in supposing the tube-like fold to be for branchial purposes; no currents, at least branchial ones, enter therein or issue therefrom; it is a fold merely subservient to locomotion; this I perceived to be the case in a very short time, as I found the movements of the foot and tube-like canal to be nearly isochronal and dependent on each other, as when the foot was extended and *fixed* for a forward movement, the tube was also exerted, and by its muscular retractive power, in contemporaneous action with the foot, the shell was advanced in progression. It will now be asked, where then is the branchial aperture? This I have also satisfactorily discovered; it is the *posterior opening* which has passed for the anus, and is in reality a considerable elongated oval fissure, having its periphery slightly thickened or margined, and divided from the rima magna of the byssus and foot by a strong, narrow, transverse septum; from the termination of this opening the mantle is closed to the umbones; within this fissure I distinctly saw a *part* of the *points of the branchiæ*, and it was regularly dilated and contracted as the currents of sea-water were received, and after aëration of the circulating fluid expelled, in a similar manner to the action of systole and diastole. I must now speak of the anus, which I had also the good fortune to discover; it is placed at the posterior end of, and under the branchial aperture, and is a very minute, and for a part of its length, a disunited pendulous tube; its orifice is not one-tenth part of the size of the branchial opening; from this internal tube I repeatedly saw the rejectamenta expelled in small cylindrical light yellow or grayish pellets, which, falling within the cavity of the fissure, were instantly ejected; this oval aperture cannot even be called sessile, it is only a slit, serving as a common canal, for supplying the branchiæ with water and for the passage of the fæces; these are the only *two* openings in the

mantle, one for the foot, and one in common, for branchiæ and anus.

It must not be supposed that I have mistaken the functions of this fissure, and that it only belongs to the anal apparatus. *This is not the case; it is beyond doubt a common cavity for two distinct purposes, viz. anal and branchial.*

Thus this apparently strangely-formed animal turns out to be very similar to most of the bivalves, having the branchial and anal openings close together, where they ought to be, at the posterior end, and the anterior tube-like fold being nothing more than an aid to the foot in locomotion. I should not be at all surprised if the tube of *Kellia suborbicularis*, when closely examined (as it shall be), turns out to be an open canal; but whether this is the case or not, it is not for branchial, but locomotive uses.

From this examination it results, that the only essential difference between the two species is, that the one is *viviparous* and the other *oviparous*. You will now be able to judge if the genus *Poronia* must be adopted.

In the twelve specimens no young were found, as in the summer-time; I therefore conclude that "Alma Venus," as Lucretius styles the goddess, does not influence the self-sufficing loves of *these mollusca* until

. "species patefacta est verna diei,
Et reserata viget genitabilis aura Favonî."

I am, my dear Sir, most truly yours,

Ed. Forbes, Esq.

WILLIAM CLARK.

XXXV.—*Descriptions of Aphides*. By FRANCIS WALKER, F.L.S.

[Continued from p. 53.]

61. *Aphis Ribis*.

Aphis Ribis, Linn. Syst. Nat. ii. 733. 1; Faun. Suec. 975; Gmel. ed. Syst. Nat. i. 2201; Fabr. Syst. Ent. 734. 5; Sp. Ins. ii. 385; Ent. Syst. iv. 211. 7; Syst. Rhyn. 295. 7; Frisch, Ins. ii. 9. t. 14; Réaum. Ins. iii. 281–350. t. 22. f. 7–10; Hausm. Ill. Mag. i. 437. 2; Leuwenh. Arc. ep. 90. 545. t. 548; Blanck. Ins. 164. t. 14. f. D. 2; Schrank, Faun. Boic. ii. 1. 108. 1195; Sir Oswald Mosley, Gard. Chron. i. 628; Kalt. Mon. Pfl. i. 39. 26.

Ribifex, Amyot, Ann. Soc. Ent. 2^{me} série, v. 476.

This *Aphis* feeds on *Ribis rubrum*, *R. nigrum*, *R. alpinum*, *R. grossularia*, and *R. uva crispa*, from March till November.

The viviparous wingless female. In the spring and when very young it is dark olive-green, oval, short, and plump: the feelers